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Case Docket No. 7237
Date: July 14, 2008

Mail Stop Appeals - Patents
COMMISSIONER OF PATENTS
PO Box 1450
Alexandria, VA 22313-1450

Re: Application of: Jaffee et al
Serial No.: 10/718,007
Filed: November 20, 2003
For: TOUGH, FLEXIBLE MATS

Art Unit: 1794
Examiner: MATZEK, Matthew D.

Transmitted herewith is/are the following document(s) related to the above-identified application:

- ☐ Notice of Appeal
☒ Appeal Brief (24 pages) in response to Notice of Non-Compliant Brief dated 7/03/08.
☐ Request for Oral Hearing

Please extend the time for filing the Notice of Appeal _____ () months to _____.

The fee has been calculated as shown below:

Notice of Appeal	\$510.00	
Appeal Brief	\$510.00	510.00
Request for Oral Hearing	\$1030.00	
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In The United States Patent and Trademark Office

In re Application of: Jaffee

Art Unit: 1794

Serial No. 10/718,007

Case Docket No. 7237

Filed: November 20, 2003

Examiner: Matzek, Matthew D.
July 14, 2008

For: Tough, Flexible Mats

Commissioner of the Patents & Trademarks
Alexandria, VA 22313-1450

Dear Sir:

This appeal is from the Final Office Action mailed on February 1, 2008, the Advisory Action mailed April 4, 2008, rejecting claims 51-64, 71-84, 91-94 and 99, set forth in the Claims Appendix of this brief and the Notice of Non-Compliant Appeal Brief (because of the use of "invention" instead of "subject matter" in heading V.

AMENDED APPEAL BRIEF

I. Real Party In Interest:

The real party in interest is Johns Manville, assignee of the inventor, Jaffee.

II. Related Appeals and Interferences

NONE

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III. Status of the Claims

Claims 1-50, 65-70, 85-90 and 95-98 having been cancelled earlier, the final rejection of claims 51-64, 71-84, 91-94 and 99 under 35 USC 103(a) is hereby appealed.

IV. Status of Amendments

After the Final Office Action mailed February 1, 2008, a Rule 1.116 Amendment and Request For Reconsideration was filed on March 18, 2008. This Rule 1.116 Amendment was entered and the rejection under 35 USC 112, second paragraph was withdrawn, but the Final Rejection under 35 USC 103 of the appealed claims was maintained.

V. Summary of the Claimed Subject Matter:

The invention of independent claims 51, 91 and 99 are fibrous nonwoven mats having particular compositions and parameters that produce a unique combination of properties that make the mats uniquely suitable, after scoring and folding, for connecting webs joining an exposed facer sheet and a different backer sheet in unique compressible ceiling tile. The mats of independent claim 51 having a basis weight of 2.3 to about 2.6 lbs/100 sq. ft., a thickness in the range of about 38 to about 48 mils, high flame resistance and unexpected excellent tensile strength, flex and recovery properties after scoring and folding and being suitable for use as a scored and folded fibrous nonwoven mat for vertical webs spanning between an exposed mat and a backer mat in a compressible ceiling tile because of the fibrous nonwoven mat having the ability, after being scored, folded, and compressed, to spring back to the original shape and orientation, the fibrous nonwoven mat comprising a blend of fibers comprising about 88 to about 92 weight percent chopped glass fibers having a diameter in the range of about 13 to about 17.5 microns and a length in the range of about 0.7 to about 1.1 inches and about 8 to about 12 percent man-made polymer fibers selected from the group consisting of polyester, polypropylene,

nylon, PBT, polyacrylonitrile, and polybenzimidazole in the fibrous nonwoven mat, the blend of fibers in the being bound together by a binder that is at least partially cured and consists essentially of, before drying and curing, a homopolymer or a copolymer of polyacrylic acid and a polyol, with or without a polycarboxy polymer, the binder being present in the mat in an amount of about 25 +/- 5 wt. percent of the fibrous nonwoven mat, the fibrous nonwoven mat having a Taber Stiffness of at least about 50 gram centimeters and passing the National Fire Protection Association's (NFPA) Method #701 Flammability Test. The compressible or collapsible ceiling tile mentioned in the claims are unique and are disclosed in U.S. Published Patent Application No. 20020020142 (see Evidence Appendix) that can be collapsed and compressed to a thin, flat condition to reduce storage and shipping costs.

The invention of independent claim 91 are fibrous nonwoven mats having a basis weight in the range of 2.3 to about 2.6 lbs./100 sq. ft., a thickness in the range of about 38 to about 48 mils, a high flame resistance and unexpected tensile strength, flex and recovery properties after scoring and folding and suitable for use as a scored and folded fibrous nonwoven mat as vertical webs spanning between an exposed mat and a backer mat in a compressible ceiling tile as disclosed in published U. S. Published Patent Application No. 20020020142 filed April 23, 2001, because of the ability of the fibrous nonwoven mat, after being scored, folded, and compressed, to spring back to the original shape and orientation, the fibrous nonwoven mats comprised of a blend of fibers comprised of about 84 to about 92 wt. percent of chopped glass fibers having an average fiber diameter in the range of about 13 to about 17.5 microns and lengths within the range of about 0.7 and about 1.1 inches and about 8 to about 16 wt. percent of polyester fibers having a length of about 0.25 +/- 0.07 inch, the blend of fibers being bound together with about 20 to about 30 wt. percent, based on the dry weight of the fibrous nonwoven mat, of a cured resin consisting essentially of a resin derived from an aqueous homopolymer or copolymer of polyacrylic acid and a polyol, with or without a polycarboxy polymer, the fibrous nonwoven mat having a Taber Stiffness of at least about 50 gram centimeters and passing the National

Fire Protection Association's (NFPA) Method #701 Flammability Test.

Independent claim 91 differs from claim 51 in the following ways:

- 1) more particularly describes the compressible ceiling tile by reference to a pending patent application in which it is described,
- 2) the amount of glass fibers in the blend of fibers is about 84 to about 92 wt. percent instead of about 88 to about 92 wt. percent in claim 51,
- 3) the man made polymer fibers are specified as polyester fibers having a length of about 0.25 +/- 0.07 inch versus a group of polymer fibers with no length specified in claim 51, and amounts in a range of about 8 to about 16 wt. percent instead of in the range of about 8 to about 12 wt. percent in claim 51, and
- 4) the resin bonding the fibers together is cured whereas in claim 51 the resin is at least partially cured.

Independent claim 99 are fibrous nonwoven mats having high flame resistance and unexpected tensile strength, flex and recovery properties after scoring and folding and suitable for use as the scored and folded fibrous nonwoven mats used for vertical webs spanning between an exposed mat and a backer mat in a compressible ceiling tile as disclosed in published U. S. Published Patent Application No. 20020020142 filed April 23, 2001, because of the ability of the fibrous nonwoven mat, after being scored, folded, and compressed, to spring back to the original shape and orientation, the fibrous nonwoven mat comprised of a blend of fibers comprised of about 88 to about 92 wt. percent of chopped glass fibers having an average fiber diameter in the range of about 16 +/- 1 microns and a length of about 1 inch and about 8 to about 12 wt. percent of 1.5 denier polyester fibers having a length of about 0.25 +/- 0.07 inch, the blend of fibers being bound together with about 25 to about 28 wt. percent, based on the dry weight of the fibrous nonwoven mat, of a cured resin derived from an aqueous

homopolymer or copolymer consisting essentially of polyacrylic acid and a polyol, with or without a polycarboxy polymer the average molecular weight of the polyacrylic acid polymer is about 3,000 or less, wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent, the mat passing the National Fire Protection Association's (NFPA) Method #701 Flammability Test, the mat having a Taber Stiffness of at least about 50 gram centimeters and the mat having an air permeability in the range of about 500 – 700 CFM/sq. ft., the nonwoven mat having a basis weight in the range of 2.3 to about 2.6 lbs/100 sq. ft and a thickness in the range of about 35 to about 48 mils. Independent claim 99 differs from independent claim 51 in the following ways:

- 1) more particularly describes the compressible ceiling tile by reference to a pending patent application in which it is described,
- 2) further describes the glass fibers as having an average fiber diameter in the range of about 16 +/- 1 microns and a length of about 1 inch instead of a diameter in the range of about 13 to about 17 microns and a length in the range of about 0.7 to about 1.1 inches in claim 51,
- 3) the man made polymer fibers are specified as 1.5 denier polyester fibers having a length of about 0.25 +/- 0.07 inch instead of a group of polymer fibers of undescribed size in claim 51,
- 4) the binder content is specified as about 25 to about 28 wt. percent instead of the about 25 +/- 5 wt. percent in claim 51,
- 5) the binder is further described by the average molecular weight of the polyacrylic acid polymer being about 3,000 or less and wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent, and
- 6) an additional property of the mats being that the mats having an air permeability in the range of about 500 - 700 CFM/sq. ft., and the

thickness of the mats being in the range of about 35 to about 88 mils instead of a range of about 38 to about 48 mils in claim 51.

VI. Grounds of Rejection to be Reviewed on Appeal:

Claims 51-64, 71-84, 91,94 and 99, all of the claims on appeal, stand finally rejected under 35 USC 103(a) as being unpatentable over Jaffee (5,772,846) in view of Arkens et al (5,661,213) and further evidenced by Chenoweth et al (4,888,235) as set forth in the Office Action dated 9/14/2007, namely;

a) that Jaffee discloses a nonwoven glass fiber mat comprising a major portion of glass fibers and a minor portion of polymeric fibers with crosslinkable binder (abstract). The mat may be any basis weight but its preferred basis weight is from about 1.8 to about 2.2 pounds per 100 sq. ft. The Examiner takes the position that 2.3 pounds per 100 sq. ft. is provided for by a teaching of about 2.2 pounds per 100 sq. ft. because it is only 0.1 pounds per 100 sq. ft. less than the claimed value and the claimed value is only measured to the nearest 0.1 pound per 100 sq. ft. The applied invention can also be pleated or therformed to produce a variety of composites and laminates (Abstract) and as such is suitable for use as a scored and folded vertical web as now claimed. Jaffee's nonwoven mat comprises glass fibers with diameters between about 9 and 20 microns and lengths of around one inch (col. 3, lines 34-61). The nonwoven mat further comprises polyester fibers of 1.5 denier with lengths as low as 0.25 inch (col. 3, lines 54-61) and acrylic or modified urea formaldehyde binder (Example 1). The binder may be present in the nonwoven mat at up to 35 wt. percent of said mat.

b) Example 1 of Jaffee '846 provides for a mat thickness of 36 mils. The Examiner interprets a thickness of 36 mils to be about 38 or 39 mils. Therefore Jaffee provides for the thickness limitation of claim 1 (sic) because a difference of 10 percent or less between the claimed and applied values would certainly provide for the claimed thickness limitations as their values are not rigid, but instead are "about" a given value. Applicant's Taber stiffness is also provided for

in Jaffee in the same manner (stiffness reported in the Table in col. 6 is 33-45, the present inventor agreeing that the stiffness data reported in Jaffee is Taber stiffness data.

c) Jaffee fails to teach the use of claimed binder composition and the specific amounts of glass and polyester fibers, and while the mat of Jaffee provides the claimed fibers, Jaffee fails to use a binder that is at least partially cured and before drying and curing comprises a homopolymer or a copolymer of polyacrylic acid and a polyol.

d) Arkens et al relates to a formaldehyde-free curable aqueous binder containing a polyacid, a polyol and a phosphorus-containing accelerator. The binder may be used as a binder for heat resistant nonwovens such as nonwovens composed of fiberglass or other heat resistant fibers including arimid fibers, polyimide fibers, rayon fibers and certain polyester fibers. This reference also teaches that the polyacid may be a compound having a molecular weight less than about 1000 bearing at least two carboxylic acid groups and that it may be a polymeric acid, preferably an addition polymer formed from at least one ethylenically unsaturated monomer (such as methacrylic acid, acrylic acid, etc.) (Refer to col. 3, lines 45 through col. 4, line 5). This reference further teaches that the polyol may be triethanolamine (col. 6, lines 1-6) and the aqueous binder composition may also contain emulsifiers, pigments, fillers, etc. This reference teaches a nonwoven mat containing 1.25 inch long glass fibers bound with 28 wt. percent of the aqueous binder and having a basis wt. of 1.75 pounds per 100 sq. ft. (Example 3). Since both Jaffee and Arkens et al are directed to glass fiber nonwovens comprising heat resistant fibers, the purpose disclosed by Arkens et al would have been recognized in the pertinent art of Jaffee. The Examiner urges it would have been obvious to one of ordinary skill in this art to have modified the mats of Jaffee by providing them with the binder composition of Arkens et al because of the motivation of producing formaldehyde free, heat-resistant nonwovens.

f) The Examiner acknowledges that the teachings of Jaffee modified by those of Arkens et al do not explicitly teach all of the properties of the claimed mats, such

as the ratio of wet tensile to dry tensile, passing the NFPA Method #701 Flammability Test, but the Examiner urges that these would be inherent in those mats.

g) The claimed range of concentration of man made polymer fibers like polyester fibers encompasses typical values that are found in the prior art evidenced by Chenoweth et al (See Abstract and Table 1). Since each element is recognized as a result effective variable in this field of endeavor and it has been held that discovering optimum values would have required only routine experimentation. It would have been obvious to one having ordinary skill in the art to have made the combined article of Jaffee/Arkens et al/Chenoweth et al with the claimed basis, weights, binder percentage and fiber composition, since it has been held that here the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, In re Aller, 105 USPQ 233.

h) The limitation of "a binder that is at least partially cured and consists essentially of, before drying and curing, a homopolymer or copolymer of polyacrylic acid and a polyol" is met by the composition of Arkens et al and for the purposes of searching for and applying prior art under 35 USC 102 and 103, absent a clear indication in the specification or claims of what the basis and novel characteristics actually are, "consisting essentially of" is construed as equivalent to "comprising", see PPG, 156 F. 3d, 48 USPQ2d at 1355, MPEP 2111.03.

i) The Examiner states that the Jaffe Declaration(s) are insufficient to overcome the rejection because the Examiner urges that the Declarations fail to demonstrate that the prima facie case of obviousness set forth is invalid because it is the Examiner's opinion that the fact that it took an expert in this art 100 trials of different combinations taking 54 days of work "is not deemed excessive and does not contribute to a prima facie case of non-obviousness." Also, the Examiner stated that applicant has not provided evidence that the instant application is in possession of unexpected results.

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VII. ARGUMENTS:

The claimed invention is based on the discovery of a combination of mat properties, compositions and mat parameters for a mat that provides superior performance, after being scored and folded, in a unique compressible ceiling tile described in Published Pat. Application No. 2002/0020142 and also illustrated in Exhibit 1, and the mat having properties, after scoring and folding, unexpected by the inventor in view of the composition and parameters. The issue is whether the combined teachings of Jaffee '876, Arkens et al and Chenoweth make the claimed mats, and their properties after scoring and folding, obvious to one of ordinary skill in the art. They certainly weren't obvious to the present joint inventor Jaffee, the same Jaffee of Jaffee '876, because as shown in paragraphs 1, 2 and 4a of the 37 CFR 1.132 Declaration filed August 23, 2006, Jaffee, who can be considered an expert in glass fiber nonwoven mat field, ran more than 100 trials of different compositions and mat parameters taking more than 54 days to discover the claimed mats (please see Evidence Appendix). While the Jaffee Declarations may not be conclusive evidence of non-obviousness, they certainly are strong evidence of non-obviousness. Applicants believe that the Examiner has erred by either misreading or misunderstanding the references, or has fallen into hindsight reconstruction using applicants own disclosure as a roadmap in making the rejection under 35 USC 103a, for the following reasons:

Re Jaffee '876 teachings:

The Examiner urges that Jaffee teaches a nonwoven mat comprising a major portion of glass fibers and a minor portion of polymer fibers bound together with up to 35 wt. percent of a crosslinkable binder, the mats having a basis wt. in the range of 1.8 to about 2.2 lbs/100 sq. ft. The Examiner urges that Jaffee teaches the claimed mats except for the type of binder, but this is not correct for the following reasons:

a) The Examiner urges that Example 1 of Jaffee teaches a mat having a thickness of 36 mils, but this mat contains only glass fibers (no man made polymer fibers) bound together with a urea formaldehyde plasticized with a mixture of polyvinyl acetate homopolymer and an acrylic tripolymer, a conventional mat binder. The Examiner further urges that the mat thickness of 36 mils meets the minimum thickness of 38 mils of the claimed mats on the basis that the claimed thickness is within 10% of the claimed thickness, but nothing in Jaffee teaches or reasonably suggests modifying the mat of Example 1 to increase the thickness to 38 mils. Note that none of the mats in the other Examples has a thickness as great as even 36 mils - note in Example 2 where 15 wt. percent of the glass fibers were replaced with 1.5 denier polyester fibers and the plasticized UF binder was replaced with a same amount of a binder of acrylic latex containing a stearylated melamine, the thickness decreased to 31 mils. Also note that the Taber Stiffness of Example 1 was only 37 (please see the Table in col. 6). Thus, the mat of Jaffee '876, Example 1, cannot lead one of ordinary skill in the art to the claimed mats because it doesn't contain any man made polymer fibers and has a Taber Stiffness of only 37. In paragraph No. 3 of the Jaffee Declaration filed November 19, 2007, Jaffee states that the Stiffness data in the Table in col. 6 of Jaffee '876 is in fact Taber Stiffness data. Note that the mat of Example 1 of Jaffee '876 is not a mat of the invention of that reference, but instead is a prior art mat used as a comparative example, see col. 5, lines 33-49.

b) The Examiner urges that Example 2 of Jaffee '876 teaches using 15 wt. percent of 1.5 denier polyester fibers in place of glass fibers to make a mat containing an acrylic latex binder containing a small amount of stearylated melamine, the binder amount the same 19-20 wt. percent as in Exhibit 1 (see col. 5, lines 55-56. This mat had a basis weight of 2.1 lbs./100 sq. ft., but a thickness of only 31 mils and a Taber Stiffness of only 45 (please see the Table in col. 6). The Examiner urges that this Taber Stiffness meets the minimum Taber Stiffness of at least about 50 of the claimed mats because one of ordinary skill in the art would consider 45 to be at least about 50 - applicants disagree and find no basis for the Examiner's position that the term "about" means within 10 percent of the

number. The Examiner did not provide any basis for this allegation and applicants believe that one of ordinary skill in the art would believe that the term "about" means +/- 10 %. nothing in applicants specification suggests to one of ordinary skill in the art that the term "at least about 50" would reasonably mean at least 45. Also, Example 2 is not part of the Jaffee '876 invention, but is instead a part of the prior art as background to the Jaffee '876 invention described in col. 3, lines 16-36 and lines 50-65 and exemplified in Examples 3 and 4, please see col. 5, lines 60-67. Also, the mat of Jaffee '876 does not meet the requirements of the claimed mats as pointed out in paragraph No. 4, that the mat disclosed in Example 2 is a commercial mat offered by the assignee of the present application and does not meet the requirements for the collapsible web in the compressible ceiling tile because of insufficient Taber Stiffness and because it doesn't pass the National Fire Protection Associations (NFPA) Method #701 Flammability Test.

c) The invention of Jaffee '876 is actually illustrated in Examples 3 and 4 where Jaffee teaches replacing the acrylic latex binder containing stearylated melamine of Example 2 with a crosslinkable vinyl chloride acrylate copolymer, with or without small amounts of stearylated melamine, with the basis weight of the Example 3 mat being the same, 2.1 lbs./100 sq. ft. as Examples 1 and 2. But this teaching leads one of ordinary skill in the art away from the claimed invention because the Taber Stiffness of this mat is only 33, even lower than that of the Examples 1 and 2 mats. Also, the Examiner urges that Jaffee '846 teaches mats having a basis weight of 1.8 to about 2.2 lbs. per 100 sq. ft. and that one of ordinary skill in the art would find consider this to extend to 2.3 lbs. per 100 sq. ft. Applicant disagrees because Jaffee '846 clearly teaches that his most preferable basis weight is about 2.1 lbs. per 100 sq. ft. and this leads one of ordinary skill in the art away from the claimed invention of 2.3 to about 2.6 lbs. per 100 sq. ft.

d) Jaffee teaches that the mats of Example 4, dried at a lower temperature of 250 deg. F. can be heated and pleated or therformed to produce performs that can be used to make a variety of composites and laminates (Abstract), or that the mats can be heated and pleated to form pleated filter elements. The Examiner urges that this teaching of therforming or pleating teaches one of ordinary skill in the art

that such (mats) would be suitable for use as a scored and folded vertical web as now claimed. Jaffee does not teach anything about scoring and folding! Scoring a mat, or any material, scratches and damages some of the fibers in or near the surface, making the mat easier to fold and causes it to fold along the scored line when folding forces are applied later. The damage caused by scoring weakens the mat and in prior art mats destroys or greatly reduces their ability to spring back after scoring and folding, especially if they have to resist the weight of another mat to which the ends are attached. One of ordinary skill in the art knows that therforming and pleating is totally different than scoring and folding in that in therforming and pleating the mat surface is not damaged.

e) While Jaffee '846 teaches using a minor portion of polymer fibers like polyester fibers in the mat, Jaffee '846 also teaches that doing so reduces the thickness of the mat to 31 mils. Jaffee '846 does not teach or reasonably suggest that a range of 8-12 percent or 8-16 percent of polymer fibers, like polyester fibers, would produce the claimed properties. Note that the mat of Example 3, Jaffee's invention, had a Taber Stiffness of only 33 (Table).

f) The Examiner acknowledges that Jaffee '846 does not teach or reasonably suggest using a binder of a cured resin derived from an aqueous homopolymer or copolymer consisting essentially of polyacrylic acid and a polyol, with or without a polycarboxy polymer, the average molecular weight of the polyacrylic acid polymer being about 3,000 or less, but urges that Arkens et al teaches such a binder for glass fibers and further urges that it would have been obvious to one of ordinary skill in the art to have substituted the binder taught by Arkens et al for the crosslinkable vinyl chloride acrylate copolymer, with or without small amounts of stearylated used by Jaffee '876. Certainly nothing in Jaffee '876 teaches or reasonably suggests doing this.

Re Arkens et al:

g) The Examiner urges that it would have been obvious to have modified Jaffee '876 by using the binder taught by Arkens et al because Arkens et al teaches that their binder is useful for nonwoven fabrics and is formaldehyde free. But, replacing the binder in Jaffee '876 with the binder of Arkens et al does not produce the claimed invention. Also, nothing in Arkens et al teaches or reasonably suggests the parameters of the claimed mat that differ from the teachings of Jaffee '876 or Arkens et al, such as the higher basis weight, the greater thickness, the higher Taber Stiffness, etc. that permit the claimed mats to perform in a superior manner, after scoring and folding, as collapsible webs in compressible ceiling tile. Also, please note that although Arkens et al teach many applications for their mats at col. 8, lines 61-67, use as a facer mat for gypsum wall board or for use as collapsible webs in compressible ceiling tile are not taught or reasonably suggested.

h) Arkens et al teach at col. 8, lines 61-67, various uses for nonwovens containing their binder, but these uses do not mention scoring and folding and do not include use in any ceiling tile much less compressible ceiling tile. Nothing in Arkens et al teaches or reasonably suggests nonwoven mat parameters critical to superior performance of the mat as scored and folded, collapsible webs in compressible ceiling tile. Arkens et al do teach using their binder with glass fibers in Example 3 beginning in col. 9. That mat had a basis wt. of only 1.75 lbs. per 100 sq. ft. Arkens et al's teachings explore the effects of various binder compositions and heat treatments of bindered nonwovens on the wet tensile vs dry tensile strengths of the mats, but does not disclose effects on the mat parameters and properties critical to good performance as scored and folded webs in compressible ceiling tile. There are many formaldehyde free binders for nonwoven mats and there is nothing in Arkens et al that would lead one of ordinary skill in the art to use their binder along with other changes in mat parameters not taught or reasonably suggested in the Arkens et al patent.

Re Chenoweth et al:

i) Chenoweth teaches a compressible blanket or mat that can be used to form automobile headliners and other sound and heat insulating complexly shaped panels. Chenoweth is apparently relied on by the Examiner for teaching a range of polymer fibers in combination with glass fibers, but the glass fibers taught by Chenoweth are not chopped, glass fibers as in the claimed invention, but instead are rotary spun and attenuated glass wool type fibers. Chenoweth teaches compressible blankets, col. 2, lines 45-50 and col. 3, lines 61-64, of finer glass fibers (3-10 microns in diameter) and completely different types of products than the presently claimed nonwoven mats. Please also see the Jaffee Declaration filed August 23, 2006, paragraph #4d (i -iii) showing that nonwoven mat using 9-10 micron chopped glass fibers had a Taber Stiffness of only 14. Chenoweth also teaches away from the claimed mats, teaching that an optimum proportion of glass fibers is 62 percent and an optimum proportion of polymer fibers is 21 percent and the optimum percent of binder is 16.5 percent. The Examiner urges that applicants' ranges for the concentration of polyester fibers are broad and encompass typical values found in the prior art as evidenced by Chenoweth. With due respect, this allegation is wrong! The claimed mat contains about 8-12 wt. percent (8-16 wt. percent in claim 91) of man-made polymer fibers and this range is not broad. Chenoweth urges in Table 1 that a range of 30-50 wt. percent of synthetic fibers are functional, that a range of 10-30 wt. percent are preferred, and that 21 wt. percent is optimal, and this is in combination, not with 13-17.5 micron chopped fibers about 0.7 to about 1.1 inch long like in the claimed mats, but instead with rotary spun glass fibers having diameters of 3-10 microns (col. 2, lines 21-22) and lengths of less than 1/2 inch to approx. 3 inches (col. 3, lines 67-68. Finally, if just any combination of glass fibers and polymer fibers bonded with any type of binder would have produced the properties and characteristics necessary to perform well in the scored and folded webs of the compressible ceiling tile, set forth in the appealed claims, the present inventor, Jaffee, would not have tried more than 100 combinations before discovering the presently claimed invention, see Jaffee Declaration filed on August 23, 2006, paragraph 1, 2 and 4a, 4b, 4d 1 ii and iii and all of paragraph 4e. Thus, nothing in Chenoweth

et al would have led one of ordinary skill in the art to modify the teachings of Jaffee '846 by using the binder of Arkens et al and to make mats having parameters of the claimed mats.

For the above reasons, applicants believe that the Examiner has failed to establish a prima facie case of obviousness as required under 35 USC 103, and even if so, the evidence in the Jaffee Declaration filed August 23, 2006, particularly paragraphs 1-4 and the Jaffee Declaration filed November 19, 2008, particularly paragraphs 1, 2 and 4a, b, d 1 ii, d 1 iii and all of 4e and respectfully requests the Board of Appeals to reverse the outstanding rejection under 35 USC 103a.

Further, because of the many differences in the parameters of the prior art mats, suggested applications and properties of the prior art mats taught by Jaffee '846, Arkens et al and the compressible blankets of Chenoweth et al from the claimed mats, and the reasons given above regarding the lack of motivation for each difference, the present rejection seems to be an improper hindsight reconstruction using applicants' own disclosure as a template to assemble irrelevant and/or unrelated pieces of prior art to try to establish a case for obviousness, which is improper, see *American Medical Systems, Inc. v Medical Engineering Corp.*, 26 USPQ 2d, 1081, 1091, (District Court of E.D. Wisconsin, 1992) for the principal that one may not use the applicants' disclosure as a "road map" for finding and combining prior art using only hindsight after having the benefit of applicants disclosure. Several discrepancies or deficiencies in the prior art teachings relative to that of the claimed mats, such as the obviously lower stiffness, basis weight and thickness, the different applications suggested by all three references, and the absence of any teaching or reasonable suggestion in any of the references of a fibrous nonwoven mat for use as a collapsible web divider in a compressible ceiling tile of the type described above or that the mat should have a Taber stiffness, basis weight thickness and proper ties of the claimed mats, combined with the teaching away by preferred or optimal combinations taught in Jaffee '846, Arkens et al and Chenoweth et al, including the difference in the type of glass fibers taught by Chenoweth et al are all

evidence that the present rejections are improper hindsight rejections.

For these reasons, and the reasons given above, applicant believe that claims 3 and 6 are patentable under 35 USC 103, over any reasonable combination of teachings of Jaffee '846, Arkens et al and Chenoweth et al, and respectfully requests the Board of Appeals to reverse this rejection.

Respectfully submitted,

Date: July 14, 2008


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VIII. Appendix - Claims

1-50. (Cancelled)

51. A fibrous nonwoven mat having a basis weight of 2.3 to about 2.6 lbs/100 sq. ft., a thickness in the range of about 38 to about 48 mils, high flame resistance and unexpected excellent tensile strength, flex and recovery properties after scoring and folding and being suitable for use as a scored and folded fibrous nonwoven mat for vertical webs spanning between an exposed mat and a backer mat in a compressible ceiling tile because of the fibrous nonwoven mat having the ability, after being scored, folded, and compressed, to spring back to the original shape and orientation, the fibrous nonwoven mat comprising a blend of fibers comprising about 88 to about 92 weight percent chopped glass fibers having a diameter in the range of about 13 to about 17.5 microns and a length in the range of about 0.7 to about 1.1 inches and about 8 to about 12 percent man-made polymer fibers selected from the group consisting of polyester, polypropylene, nylon, PBT, polyacrylonitrile, and polybenzimidazole in the fibrous nonwoven mat, the blend of fibers in the being bound together by a binder that is at least partially cured and consists essentially of, before drying and curing, a homopolymer or a copolymer of polyacrylic acid and a polyol, with or without a polycarboxy polymer, the binder being present in the mat in an amount of about 25 +/- 5 wt. percent of the fibrous nonwoven mat, the fibrous nonwoven mat having a Taber Stiffness of at least about 50 gram centimeters and passing the National Fire Protection Association's (NFPA) Method #701 Flammability Test.

52. The mat according to claim 51, wherein the average molecular weight of the polyacrylic acid polymer is about 3,000 or less.

53. The mat according to claim 51, wherein the polyol is triethanolamine.

54. The mat according to claim 52, wherein the polyol is triethanolamine.

55. The mat of claim 51 wherein the man-made polymer fibers are polyester fibers.
56. The mat of claim 52 wherein the man-made polymer fibers are polyester fibers.
57. The mat of claim 53 wherein the man-made polymer fibers are polyester fibers.
58. The mat of claim 54 wherein the man-made polymer fibers are polyester fibers.
59. The mat of claim 51 wherein the binder content is in the range of about 25 to about 28 wt. percent.
60. The mat of claim 59 wherein the polymer fibers are polyester fibers and the glass fibers have an average fiber diameter in the range 16 +/- 1 micron.
61. The mat of claim 51 wherein the polymer fibers are polyester fibers about 1.5 denier and are about 0.25 +/- .07 inch long.
62. The mat of claim 52 wherein the polymer fibers are polyester fibers about 1.5 denier and are about 0.25 +/- .07 inch long.
63. The mat of claim 54 wherein the wherein the polymer fibers are polyester fibers about 1.5 denier and are about 0.25 +/- .07 inch long.
64. The mat of claim 63 wherein the glass fibers have an average fiber diameter in the range 16 +/- 1 micron and the binder content is in the range of about 25 to about 28 wt. percent.
- 65-70. (Cancelled)

71. The mat of claim 51 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.
72. The mat of claim 52 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.
73. The mat of claim 53 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.
74. The mat of claim 54 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.
75. The mat of claim 55 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.
76. The mat of claim 56 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.
77. The mat of claim 57 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.
78. The mat of claim 58 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

79. The mat of claim 59 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

80. The mat of claim 60 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

81. The mat of claim 61 wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

82. The mat of claim 99 wherein the fiber content of the mat is about 90 wt. percent of glass fibers and about 10 wt. percent of polyester fibers, the binder content of the mat is about 25 wt. percent, the basis wt. of the mat is about 2.4 lbs./100 sq. ft. and the thickness of the mat is about 42 +/- 3.

83. The mat of claim 99 wherein the fiber content of the mat is about 88 wt. percent of glass fibers and about 12 wt. percent of polyester fibers, the binder content of the mat is about 25 wt. percent, the basis wt. of the mat is about 2.6 lbs./100 sq. ft. and the thickness of the mat is about 42 +/- 5 mils.

84. The mat of claim 99 wherein the fiber content of the mat is about 92 wt. percent of glass fibers and about 8 wt. percent of polyester fibers, the binder content of the mat is about 28 wt. percent, the basis wt. of the mat is about 2.3 lbs./100 sq. ft. and the thickness of the mat is about 40 +/- 5 mils.

85-90. (Cancelled)

91. A fibrous nonwoven mat having a basis weight in the range of 2.3 to about 2.6 lbs./100 sq. ft., a thickness in the range of about 38 to about 48 mils, a high flame resistance and unexpected tensile strength, flex and recovery properties after scoring and folding and suitable for use as a scored and folded fibrous nonwoven

mat as vertical webs spanning between an exposed mat and a backer mat in a compressible ceiling tile as disclosed in published U. S. Published Patent Application No. 20020020142 filed April 23, 2001, because of the ability of the fibrous nonwoven mat, after being scored, folded, and compressed, to spring back to the original shape and orientation, the fibrous nonwoven mat comprised of a blend of fibers comprised of about 84 to about 92 wt. percent of chopped glass fibers having an average fiber diameter in the range of about 13 to about 17.5 microns and lengths within the range of about 0.7 and about 1.1 inches and about 8 to about 16 wt. percent of polyester fibers having a length of about 0.25 +/- 0.07 inch, the blend of fibers being bound together with about 20 to about 30 wt. percent, based on the dry weight of the fibrous nonwoven mat, of a cured resin consisting essentially of a resin derived from an aqueous homopolymer or copolymer of polyacrylic acid and a polyol, with or without a polycarboxy polymer, the fibrous nonwoven mat having a Taber Stiffness of at least about 50 gram centimeters and passing the National Fire Protection Association's (NFPA) Method #701 Flammability Test.

92. The mat of claim 91 wherein the average molecular weight of the polyacrylic acid polymer is about 3000 or less wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent.

93. The mat of claim 91 wherein the polyol is triethanolamine, the glass fibers have a diameter of about 16 +/- 1.5 microns and the mat has an air permeability in the range of about 500 – 700 CFM/sq. ft.

94. The mat of claim 92 wherein the polyol is triethanolamine, the glass fibers have a diameter of about 16 +/- 1.5 microns and the mat has an air permeability in the range of about 500 – 700 CFM/sq. ft.

95 - 98. (Cancelled)

99. A fibrous nonwoven mat having high flame resistance and unexpected tensile strength, flex and recovery properties after scoring and folding and suitable for use as the scored and folded fibrous nonwoven mat used for vertical webs spanning between an exposed mat and a backer mat in a compressible ceiling tile as disclosed in published U. S. Published Patent Application No. 20020020142 filed April 23, 2001, because of the ability of the fibrous nonwoven mat, after being scored, folded, and compressed, to spring back to the original shape and orientation, the fibrous nonwoven mat comprised of a blend of fibers comprised of about 88 to about 92 wt. percent of chopped glass fibers having an average fiber diameter in the range of about 16 +/- 1 microns and a length of about 1 inch and about 8 to about 12 wt. percent of 1.5 denier polyester fibers having a length of about 0.25 +/- 0.07 inch, the blend of fibers being bound together with about 25 to about 28 wt. percent, based on the dry weight of the fibrous nonwoven mat, of a cured resin derived from an aqueous homopolymer or copolymer consisting essentially of polyacrylic acid and a polyol, with or without a polycarboxy polymer the average molecular weight of the polyacrylic acid polymer is about 3,000 or less, wherein the binder is cured sufficiently that the wet tensile strength divided by the dry tensile strength times 100 equals at least about 35 percent, the mat passing the National Fire Protection Association's (NFPA) Method #701 Flammability Test, the mat having a Taber Stiffness of at least about 50 gram centimeters and the mat having an air permeability in the range of about 500 – 700 CFM/sq. ft., the nonwoven mat having a basis weight in the range of 2.3 to about 2.6 lbs/100 sq. ft and a thickness in the range of about 35 to about 48 mils.

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IX. EVIDENCE APPENDIX

The below, copy of each attached, are additional, in addition to teachings in the cited patents, relied upon by applicant.

1. U.S. Published Patent Application No. 20020020142
2. Jaffee Declaration Under 37 CFR 1.132, filed August 23, 2006.
3. Jaffee Declaration Under 37 UFR 1.132, filed November 19, 2007.
4. Exhibit 1, filed June 20, 2007.

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X. RELATED PROCEEDINGS APPENDIX

NONE